

Amendments to the Specification:

Please replace the paragraph beginning on page 1, line 11, with the following rewritten paragraph:

The present invention relates to a novel polymer gel composition capable of changing its volume by absorbing or releasing a liquid in response to an external stimulus and further relates to an optical device using such a polymer gel composition.

Please replace the paragraph beginning on page 13, line 5, with the following rewritten paragraph:

The polymer compound forming the three-dimensional crosslinked structure may be in any form. In terms of stimuli-responsive characteristics, the three-dimensional crosslinked structure is ~~preferably~~ preferably in a particle shape. Such a particle may have any shape such as a sphere, an ellipsoid, a polyhedron, a porous structure, a fiber, a star, a needle, and a hollow structure, but not limited to them. Particularly preferable are the sphere, the ellipsoid, and the polyhedron.

Please replace the paragraph beginning on page 47, line 19, with the following rewritten paragraph:

Mixed are 20 g of an aqueous solution of 20% by mass poly(acrylic acid) (with a weight average molecular weight of 250,000) and 0.5 g of glycidyl methacrylate and stirred at room temperature for 24 hours so that they are allowed to react with each other to form poly(acrylic acid) having a crosslinkable methacrylate group. The resulting solution is mixed with 0.8 g of a photoinitiator (trade name: ~~Irgacure~~ IRGACURE 2959, manufactured by Ciba Specialty Chemicals Inc.), 80 g of pure water and 3 g of poly(acrylic acid) (with a weight average molecular weight of 25,000) to form an aqueous poly(acrylic acid) solution (named

solution H). To 2.0 g of the solution H is added 2.0 g of a dispersion of the three-dimensional crosslinked structure E (with a solids concentration of about 3.0%), and the mixture is subjected to a dispersion process for 3 minutes in a planetary dispersing mixer (trade name: KK-100, manufactured by Kurabo Industries Ltd.), so that the particles of the three-dimensional crosslinked structure are uniformly dispersed in the solution. The resulting dispersion is sandwiched between two glass substrates ($50 \times 50 \times 0.9$ mm) through polystyrene spacer beads 100 μm in particle diameter and irradiated with ultraviolet rays (with a high-pressure mercury-vapor lamp, at 160 W/cm, for 150 sec, with an irradiation distance of 40 cm), so that the poly(acrylic acid) solution part is gelated to form a cured product with self supporting properties. The end faces of the substrates are coated with a UV curable resin (trade name: KAYARAD R381-I, manufactured by Nippon Kayaku Co., Ltd.) and sealed by ultraviolet irradiation (with a high-pressure mercury-vapor lamp, at 120 W/cm, with an irradiation distance of 20 cm, for a irradiation time of 30 seconds) so that an optical device (named optical device 2) is obtained.